

ABSTRACT OF THE DISCLOSURE

After a MOS type transistor is formed on the surface of a semiconductor substrate, an interlayer insulating film covering the transistor is formed. The insulating film includes a silicon oxide film made of hydrogen silsesquioxane resin in a ceramic state.

After a wiring layer is formed on the insulating film, a silicon oxide film as a surface protection film is formed on the insulating film, covering the wiring layer. In order to reduce process damages, heat treatment is performed 30 minutes at 400 °C in a nitrogen gas atmosphere. With this heat treatment, hydrogen in the silicon oxide film is released and diffuses into the channel region of the transistor to lower interfacial energy levels. Since the silicon nitride film does not transmit hydrogen, it is not necessary for the heat treatment atmosphere to contain hydrogen. A variation in threshold voltages of MOS type transistors can be easily lowered.